

## COASTAL ADAPTATION IN AUSTRALIA—some challenges

Paper presented at Coastal Forum, Adelaide, 18th February, 2010

**Bruce Thom**

**President, Australian Coastal Society, and Member of the Wentworth Group of Concerned Scientists**

Science is telling us that Australia as a continent will be severely challenged by the forces of climate change. Our coasts are no exception. Combined with existing exposure to natural hazards and a concentration of an ever-growing population, this enhanced vulnerability is defining a potential exponential growth in risk to coastal communities, economies and environmental conditions. It is also challenged by current institutional arrangements flowing from our federated form of government.

The House of Representatives Standing Committee report released in October, 2009, along with all the submissions, offers a very comprehensive coverage of the challenges, actions and inactions of all States, the Northern Territory, and many local councils. This report is based on the premise that the time to act is now. Its 47 recommendations touch on many of the difficulties we face as a nation in living and working on or near the coast, the lifeblood of Australia. The report is complemented by the First Pass Climate Risks report prepared by the Department of Climate Change and launched by the Minister for Climate Change and Water last November.

Today I will focus on what I feel we need to consider and achieve at this Forum as a federated nation. What can we do to make a difference in how we adapt to what we now see as the potentially devastating impacts of climate change on our treasured coastal assets?

Our geologic and historic knowledge informs us that extreme events can periodically do great damage to coastal settlements. Floods, surges, erosion, and devastating winds are manifested in different ways around the Australian margin; even droughts with their impacts on flows into estuaries, lake levels and water supplies have harsh consequences for biota and communities. But to a greater or lesser degree we have adjusted and designed our infrastructure, residences and businesses to cope with existing extremes.

Now we have to plan for a coastal world outside the “comfort zone” of the immediate past and present variable climate conditions to a new and changing “climate era”. In this era higher temperatures in the sea and on land, stressed ecosystems, more disease outbreaks, intensified storms, floods and droughts, and of course higher sea levels, will all operate within an exacerbated framework of existing climatic variability.

Climate change projections with all their inherent degrees of uncertainty help define a range of scenarios and projections that we now see must underpin the *adaptation imperative*.

Adaptation is where the rubber of the “diabolical policy problem of climate change” hits the road. Here is where we see how effective our institutional arrangements are in anticipating change and developing appropriate adaptation policies in our complex federal system. And here we see whether communities and businesses are willing to take

**the necessary steps to implement strategies that minimize risks facing coastal Australia as the new climate change era starts to bite.**

**We now have an opportunity to develop a National Coastal Adaptation Agenda. As I have said on other occasions: we must hope for the best but plan for the worse. The Climate Change Coastal Risks report adopted this perspective. In particular it looked at the high end of sea level rise projections realising that in all likelihood it will continue to rise well beyond 2100 and perhaps for a period at an ever-increasing rate. These projections help define the planning and coastal impact parameters along with expected trends in population and demography.**

**The House of Representatives Committee heard many calls for federal leadership. As one who has participated in such inquiries going back to 1979, I must say I have heard these calls before. What does such leadership mean? How can the federal government develop and provide guidelines and support that will be trusted and acted upon by state and local governments? What if the Commonwealth, even when it acts on advice from its research agencies like CSIRO, provides information that is deemed “uncomfortable” by the states and local communities? What are the legal consequences if the “uncomfortable” information is deemed politically unacceptable? For instance, provision of high resolution visualisation data should reveal properties and businesses at risk under different scenarios. Some won’t want to know that! There may be significant financial and human implications involving relocation, restrictions on assumed rights to use coastal land and redesign of infrastructure.**

**Through the work of NCCARF, universities, GA, CSIRO and other institutions we will see the federal system taking an active role in defining risk. This should make us more and more aware of the need for a nationally agreed risk management framework that shows sustained commitment in protecting the interests of present and future generations from the otherwise savage impacts of climate change and extreme events, and the ignorant and greedy interests of those who put short term benefits first.**

**One of the initial institutional challenges that we face is to break the umbilical cord between coastal management policies and NRM. In my view, for too long the coast has been managed with an environmental bias. To some extent this is quite understandable and has had some advantages. However, the failure of governments through NRM Ministerial agreements to fund programs to drive the much lauded ICM Framework 2006 is evidence to me that at a national level NRM interests tend to bypass the specifics of coastal land use and infrastructure planning and social welfare, health and amenity management. However, there cannot be a complete divorce.**

**Coastal management reaches into the “bowels” of Australian society. It touches nearly all of us in some way. Climate change offers a total societal challenge:**

- **It impacts on how we live and play;**
- **Some commercial infrastructure and public utilities will need to be relocated and in some cases redesigned to meet the new conditions;**
- **Many homes will have to be relocated, redesigned or protected by expensive engineering works;**
- **Heat and disease mitigation measures are going to be required.**
- **Habitats are going to be placed under increasing stress in some places.**

**The *interconnections of all these phenomena* must be part of any new agreed institutional arrangements for us to meet the adaptation imperative. This is what must be new! To compartmentalise the adaptation agenda within and between institutions will simply maintain the sectoral approach to coastal management thus perpetuating the so-called “wicked problem” of coastal management that received critical review in the House of Representatives 2009 report.**

**The answer is to *mainstream* climate change adaptation across all levels of government and within all agencies or units of these three levels, including the financial and audit arms of government.**

**Any failure to achieve international emission control will only heighten the risks facing coastal societies and thus will require us as a nation to put in place a vast array of actions to assist in adapting to the emerging climate change conditions. These conditions and their impacts will vary from place to place Already some locations are sensing the changes; others will surely follow and must anticipate and prepare for the impacts.**

**The *good* news is that state governments have commenced adaptation action to varying degrees. This is the level of government that has direct responsibility for land use planning and environmental management of coastal natural and built assets. They are taking very seriously the projections of climate change science on the potential impacts of global warming to coastal economies and communities. The task today is to help develop a national agenda that brings those actions together and enhances them in a real and tangible way: to make a real and practical difference.**

**The *bad* news is that coastal management now and into the future is confronted by a legacy of use and abuse that inhibits effective management of risk. Some of the impediments or barriers to adaptation are outlined in chapter 6 of the Climate Change Risks report and were covered at length in the House of Representatives report.**

**What are some of the barriers to effective adaptation?**

- **There are those that relate to inherited decisions on where settlements have been located on hazardous low-lying land sometimes involving ad hoc protective works or supported by vulnerable public utilities built to an assumed sea level position;**
- **Variations in state planning systems which are often oriented to providing support for housing development and job creation as well as encouraging land owners to realise expectations on future and continued use “rights” with limited concern for environmental constraints;**
- **Legal systems that support the private land owner often at the expense of the long term public good;**
- **Free holding former leased land in hazardous sites;**
- **And to uncertainty over roles and responsibilities, and lack of coordination, between and within federal, state and local governments.**

**The list is extensive. It even raises questions about building codes, notification processes of potential risk, legal liabilities and developer ethics and practices.**

What we have to remember is that for settled areas of the Australian coast it is highly *contestable space*. To put it mildly, our coast is “a cauldron of vested interests”. It boils with conflicts. Court cases are becoming more frequent and costly as a result. Many land owners are seeking legal advice on their options for protection or compensation as the outcomes of cases become known. This is good news for the legal profession, but bad news for communities and councils (and insurers of councils) forced to devote time and resources to defending decisions linked to possible climate change impacts on existing or new developments. We cannot continue to have case by case legal decisions being made in the absence of agreed national principles that have statutory standing. National coastal adaptation policy should not be left to the exigencies of the courts.

Investors from within and outside Australia seek to exploit the use of coastal property. Those who own coastal land not just treasure the privilege of being close to a beach or waterway, but also want their property values to grow. They certainly don't want to see their homes or businesses washed away or inundated every spring high tide (or not insured). So they fight for their property rights; they will engage lawyers to take their vested interests to the courts; and they will pursue insurers, bankers, the media, politicians and hapless bureaucrats to ensure that adaptation strategies best meet the private good. For them the public good is secondary, so who is going to protect that?

From time to time champions have emerged with influence and power to secure public benefits where they are in conflict with private interests. Climate change will call more and more for champions in non-government and public sectors, and especially in politics, to be advocating positions that minimize intergenerational costs. To exercise long term judgement against those with vested short term interests will not be easy.

At this Forum we have to find ways to help develop *short and long –term* strategies that will minimize risks and devastation to our treasured coastal habitats, lifestyles and livelihoods. In organising the Forum, it was decided to seek your input on three themes. We are now in a position to provide advice to all levels of government, but especially the federal government, on a national agenda for coastal climate change adaptation.

How can we improve our national capacity to cope with what the science is projecting in each of these three themes? What priorities do you think the federal government must focus on to make adaptation and risk management practical?

The first theme is how emerging climate change science and climate change impacts best improve the capacity of decision makers, both in the private and public sectors and in communities.

The second is how the processes and statutory base of regional and local land use planning be modified to take into consideration the risk framework and likely landform and habitat changes that will accompany climate change around our coasts.

And third, a changing climate will require new standards, codes and indicators of risk that will lead to many different ways in which buildings and infrastructure are designed and where.

The aim is to develop a priority list of actions for the Minister and government; actions that should cross portfolios and be of great value to any COAG discussion later this

year. The distributed discussion papers are designed to help initiate not constraint your inputs about what we need to do to strengthen coastal adaptation in Australia. The Climate Risk report and the House of Representatives report both offer additional ideas for consideration along with your personal insights.

Let me offer a few thoughts that might assist the workshop discussion.

Under science for capacity building, it is important to know how best we can urgently and continuously communicate to professions and communities the emerging science; too often I hear stories of those with responsibilities being ignorant of information on global warming that may be relevant to their roles. Arguably a sustained investment in human capital, especially through the professional bodies, will be the most important step we can take to ensure that climate change adaptation strategies are developed and implemented. In addition, what scenarios, new modelling tools and data must be developed and made accessible, and be up-dated, for improved decision making given uncertainties of impacts? We cannot afford to waste precious resources on locations and methods where they are of limited economic and social value. How can we best assess risks and impacts for different types of coasts where geographic variation must be taken into consideration? What are the priority areas or type sites that deserve research on impacts of climate change on habitats, settlements and society?

In theme two on regional planning, we are confronted with different systems in each state. What can we learn from recent initiatives in each state that may provide a nationally consistent planning adaptation framework that minimizes risk and overcomes some of the special pleading of developers seeking to benefit from less stringent planning regulations in another state? I am reminded of the powerful deterrent of the 1997 State Environmental Planning Policy No. 50 banning canal estates in NSW; surely such a deterrent should exist in every state. Each state is currently working on changing legislation and regulations—how can we best progress a national review of the benefits of these initiatives and most critically test their efficacy against climate change scenarios? How can statutes be best rewritten to ensure “explicit obligations” on the part of local and regional planners, as well as lawyers and the courts, which restrict certain types of development in places at risk? Just to “have regard to” under a merits based planning system may be now inappropriate in coastal areas under threat of erosion or sustained inundation. Bringing the doctrine of accretion into the statute law and only allowing addition to land title if the applicant can show accretion will be “indefinitely sustained”, is an example of how property owners will find it difficult to add to property (and protect with sea walls) under rising sea levels ( NSW Coastal Protection Act 1979 as amended 2002).

The third theme will cover how to best assess and measure risk. Here is where some actions can commence in the short term such as revision of building codes and appropriate innovations in infrastructure design provided the information base is adequate for different areas of the coast. Already the tribunals/courts are applying sea level rise benchmarks and setbacks—should they be nationally consistent or allow for regional/state variations based on the science? Should there be a national risk standard hierarchy? A model is set out in Chapter 6 of the Climate Risk report. This followed standards used in other countries—what else can we learn about risk standards, codes and assessment from overseas? Insurance and liability management are also issues that

**need a national consideration—what can be done to develop nationally consistency? Already insurance rates are rising in some places to reflect perceived changes in risk.**

**These are just a few points to keep in mind as we head into the workshops this afternoon. But now we must also look at the other great pressure on our coastal systems that of urbanisation, a pressure that will also require evaluation in relation to improved understanding of climate change science and impacts. And after Barbara Norman we will then hear from Warwick Watkins on what can be offered in the way of spatial information and visualization to assist decision makers better manage risk in the future.**

**The challenge again is for us at this Forum to take that next huge step in making a difference along the path of designing the best possible and effective adaptation strategies for coastal Australia. It is an opportunity to advance the process of decision-making, to help overcome the many impediments we face as a federated nation in developing an adaptation agenda, and to further demonstrate that the time to act is now.**